AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A 360-degree rotary position sensor system comprising:

a semiconductor substrate having:

(a) [[an]] a magnetoresistive angular sensor operable to generate an output representative of an angular position of a magnetic field to 180-degrees; and

(b) [[a]] a magnetoresistive linear sensor operable to generate an output representative of a sense of the magnetic field[[.]], wherein the magnetoresistive angular sensor and the magnetoresistive linear sensor are formed on the semiconductor substrate.

2. (Original) The system of claim 1, further comprising logic that functions to determine from (i) the output representative of the angular position of the magnetic field; and (ii) the output representative of the sense of the magnetic field, an angular position of the magnetic field to 360-degrees.

3. (Original) The system of claim 2,

wherein a magnet is mounted on a rotating shaft; and

wherein the angular position of the magnetic field to 360-degrees is indicative of an angular position of the rotating shaft.

4. (Original) The system of claim 2,

wherein the semiconductor substrate is mounted on a rotating shaft; and

wherein the angular position of the magnetic field to 360-degrees is indicative of an angular position of the rotating shaft.

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5. (Currently Amended) The system of claim 1, wherein the magnetoresistive linear sensor is coaxially located on the semiconductor substrate with respect to the magnetoresistive angular sensor.

6. (Currently Amended) The system of claim 1, wherein the semiconductor substrate is located substantially close to a magnet so that the magnetoresistive linear sensor and the magnetoresistive angular sensor detect the magnetic field of a magnet.

7. (Original) The system of claim 6, wherein the magnet is selected from the group consisting of a bar magnet and a disc magnet.

8. (Original) The system of claim 6, wherein the magnet is composed of a material selected from the group consisting of neodymium iron boron (NdFeB), samarium cobalt (SmCo), Alnico, and ceramic ferrite.

9. (Currently Amended) The system of claim 1, wherein a magnetic axis of the magnetoresistive linear sensor is aligned with at least one magnetic axis of the magnetoresistive angular sensor.

10. (Cancelled)

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11. (Currently Amended) A 360-degree rotary position sensor system, comprising in combination:

(a) a semiconductor substrate having:

(1) [[an]] a magnetoresistive angular sensor operable to generate an output representative of an angular position of a magnetic field with an angle range of 180-degrees;

(2) [[an]] a magnetoresistive linear sensor operable to generate output representative of a sense of the magnetic field;

wherein (i) the linear sensor is coaxially located with respect to the angular sensor; and (ii) the semiconductor substrate is located substantially parallel to a magnet mounted on a rotating shaft, wherein a gap is located substantially between the semiconductor substrate and the magnet; and (iii) the magnetoresistive angular sensor and the magnetoresistive linear sensor are formed on the semiconductor substrate; and

(b) logic that functions to determine, based on the output representative of the angular position and the output representative of the sense, an output representative of an angular position of the magnetic field with an angle range of 360-degrees.

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12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Currently Amended) A method for determining an angular position of a rotating shaft to 360-degrees, the method comprising:

positioning, substantially close to a magnet, a semiconductor substrate having [[an]] a magnetoresistive angular sensor and a magnetoresistive linear sensor, wherein the angular sensor is operable to generate an output representative of an angular position of a magnetic field with an angle range of 180-degrees; and wherein the magnetoresistive linear sensor is operable to generate an output representative of a sense of the magnetic field and wherein the magnetoresistive linear sensor and magnetoresistive angular sensor are formed on a semiconductor substrate; and

determining, from the outputs of the angular sensor and the linear sensor, an angular position of the magnetic field with an angle range of 360-degrees,

whereby the angular position of the magnetic field with the angle range of 360-degrees is indicative of the angular position of the rotating shaft.

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17. (Original) The method of claim 16, wherein determining the angular position of the magnetic field with the angle range of 360-degrees comprises adding 180-degrees to the output representative of the angular position of the magnetic field, based on detecting a sense of the magnetic field selected from the group consisting of a positive sense and a negative sense.

18. (Original) The method of claim of 16, wherein positioning the semiconductor substrate comprises mounting the semiconductor substrate on a rotating shaft.

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